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KRAMATORSK PLANT SPECIALIZES IN ANCILLARY ROLLING-MILL EQUIPMENT; NEW METALLURGICAL CRANES PUT OUT BY KHAR'KOV PLANT

PRACTICE UNIFICATION IN INDIVIDUAL PRODUCTION -- Moscow, Vestnik Mashinostroyeniya, Jul 52

In conformity with the policy of the Ministry of Transport and Heavy Machine Building to foster specialized production in its plants, the Staro-Kramatorsk Plant imeni Ordzhonikidze is concentrating on the production of ancillary rolling-mill equipment and transfer cranes.

Recently, the plant developed the following 47 [unified] type-sizes of ancillary rolling mill equipment: shears for cutting cold sheet (four type-sizes), shears for cutting cold stock of square and round cross-section (seven type-sizes), shears for cutting hot stock of square and round cross-section (nine type-sizes), plate straightening machines (five type-sizes), sectional stock straighteners (nine type-sizes), sheet benders (three type-sizes), helicoid machines for straightening pipe (five type-sizes), and disk saws (five type-sizes). As a result of developing these machines, the plant reduced its number of type-sizes by about 20 percent, without curtailing its output for its consumers.

To facilitate specialization, the plant set up the following subdivisions under its Division of the Chief Designer: a Rolling [Equipment] Bureau, specializing in ancillary rolling-mill equipment; a Mining and Metallurgical Bureau, specializing in blast furnace equipment and machines for rolling and unrolling steel strip; and a Crane Bureau, for crane production.

The Staro-Kramatorsk Plant's first move toward unification of machines was the standardization and normalization of parts and small units. This important procedure was followed even though the plant was producing on an individual basis, for many similar parts and units could be used in diverse machines. Some such parts and units are common to almost all machines built at the plant, and are

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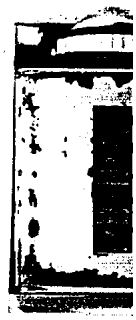

therefore ideal subjects for unification. Among them are clutches of various types, reduction units, and brakes.

In the course of the unification program, a norm was worked out for clutches. These clutches are produced in forged models, numbered from 1 to 8, and in cast models, numbered from 9 to 15. Their transmission moments, maximum permissible rates of rotation, maximum and minimum diameters of seating holes, and flywheel moments have been normalized. These normalized values are listed on a table, from which the designer selects the number designation of a clutch according to the transmitted moment; he then indicates on the blank the diameter of the seating holes and dimensions of the keyway. Similar norms are worked out for other types of clutches. Identical blanks are used for all types of clutches.

To unify its reduction units, the plant designers first established the type, then developed a series of type-sizes. The frames and casings were the first parts of the reduction units to be unified; the designs provide for the insertion of varied gear trains into identical housings. Next, unification and normalization were applied to the smaller parts: air vents, inspection hole covers, oil gauges, and side caps. The side caps are normalized in conformity with the diameters of ball and roller bearings.

Achievements in unification of reduction units have already afforded excellent results. To design one-stage or two-stage reduction units, it is now in most cases necessary only to complete the designs of two gears and of the low-speed shaft, since the designs for the rest of the parts are provided from those of previously manufactured reduction units.

During the past year, normalization of reduction units has saved the plant about 6,000 hours of work. Normalization has also enabled the plant to establish standard technological processes for machining parts and assembling reduction units, thereby speeding up work.

Unification has cut down on designing work, reduced requirements for special tools and attachments, and made it possible to reduce the products list.

Following the unification of comparatively small units, the plant proceeded to the unification of machines and aggregates. In this program, designs of previously built but not obsolete machines were used, on the one hand, while on the other, new designs were developed with an eye to incorporating their features in machines which would be built in the future.

Machines of the latter category were generally designed on the initiative of the chief designer, while the unification of design on the basis of applying previously developed parts and units was carried out on the initiative of the chief of a bureau and some designers. To facilitate the use of previously drawn-up designs, each bureau of the Division of the Chief Designer has a list of all machines built formerly, and albums containing their complete designs. The designer can thus select the required designs without having to go to the archives.

A good example of the utilization of existing designs in developing a new machine is found in an 11-roller plate-straightening machine built by the Staro-Kramatorsk Plant in 1950 for the Magnitogorsk Metallurgical Combine. Made to handle plate 4-12 millimeters thick and 1,280 millimeters wide, the machine was designed with the extensive use of already existing designs for a 9-roller plate straightener which handles plate 4-6 millimeters thick and 1,500 millimeters wide. Specifically, designs for the stand, collar beam, housing, compression mechanism, and regulator for the side rollers were used.

The automatic conveyer-equipped shear, which the Staro-Kramatorsk Plant built for the Novo-Moskovsk Tin-Plate Rolling Plant, is typical of machines designed in such a way that their plans can be used in fulfilling other orders.

The shear was built to cut packets of tin plate measuring 710 by 510 millimeters. Shortly after the shear delivered, a new order arrived for a similar shear which would cut packets measuring 750 by 1,500 millimeters. In designing the latter, the basic design of the former machine was used; the only changes made were those necessitated by the greater dimensions of metal to be handled. Thus, a unified shear design was evolved.

A group of roughing stands of a three-high mill, also ordered from the Novo-Moskovsk Tin-Plate Rolling Plant, were designed in complete unification with similar equipment which had been built for the Dnepropetrovsk Plant imeni Komintern. This equipment comprised the following units: a stationary table to go in front of the stand; a tilting table for the after side of the stand; a gripping roller for the tilting table; a nine-roller plate straightener; a transmission unit; an inclined table to go in front of drawing rollers; drawing rollers for a doubler; a lifting and turning table; a roller doubler; a pusher, and an adapter.

Moscow, Vestnik Mashinostroyeniya, Aug 52

/A photograph accompanying the article from which the following information is taken shows the letters "SKMZ" on the machine described. This indicates that it was built at the Stano-Kramatorsk Plant imeni Ordzhonikidze. (See appended information on graphics material.)/

A new 11-roller straightening machine handles cold stock of 8-30 millimeters diameter in cross section, as well as stock of other cross sectional shapes. Powered by a PN-400 direct current electric motor, the machine straightens the stock at the rate of 1.25-2.47 meters per second.

PRODUCE CHARGING CRANES -- Moscow, Vestnik Mashinostroyeniya, Jul 52

The Khar'kov Hoist and Transport Machinery Plant puts out two types of overhead traveling cranes for use in charging cupolas.

The first of these, the NKB-201, consists of a single-girder bridge having suspended below it a short trambeam hoist, equipped with a bucket.

The other crane, the ZIL-KMB-3, has a standard bridge frame, mounting a trolley to which is attached the charging extension, with bucket.

Technical specifications of the cranes are as follows:

	NKB-201	ZIL-KMB-3
Lifting capacity (kg)	2,000	3,000
Span (m)	8-15	8-11
Lifting height (m)	20	16
Lifting speed (m/min)	16	11
Traversing speeds (m/min)		
Trolley	25	40
Bridge	50	88
Container volume (cu m)	0.5	0.65

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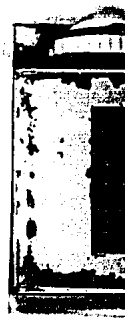

	NKB-201	ZIL-KMB-3
Hoisting motor		
Type	MTK-22-6	MT 22-6
Power (kw	7.5	7.5
Revolutions per minute	900	900
Trolley motor		
Type	AOF 41-4 (two motors)	MT-11-6
Power (kw)	1.7	2.2
Revolutions per minute	1,420	885
Bridge-moving motor		
Type	MTK-12-6	MT 41-8
Power (kw)	3.5	11
Revolutions per minute	870	715

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